

Atty. Docket No. 2003-0059-01
USSN 10/608,521

IN THE CLAIMS:

1. (Currently Amended) A method for stabilizing spectral shift in a multi-layered dielectric reflectivity coating located on a substrate ~~for reflecting electromagnetic radiation~~ after formation of the dielectric reflectivity coating on the substrate, comprising:

exposing the multi-layered dielectric reflectivity coating to a pretreatment of a sufficient amount of deep ultraviolet (DUV) laser radiation that is less than or equal to 300 nanometers in wavelength to induce sufficient compaction or densification by removal of water vapor in enough of the multi-layered dielectric reflectivity coating to inhibit subsequent compaction or densification during continued exposure to DUV or shorter wavelength radiation,

wherein the pretreatment is prior to use of the multi-layered dielectric reflectivity coated substrate in one or more applications that expose the coating to optical fluence.

2. (Previously Presented) The method of claim 1 further comprising:

the pretreatment laser radiation exposure amounts to energy of at least the equivalent of about 2 billion pulses of DUV radiation from a laser at 9 milliJoules per pulse.

3. (Previously Presented) The method of claim 2 further comprising:

the pretreatment laser radiation exposure amounts to the energy being delivered at about a 3KHz pulse repetition rate.

4. (Previously Presented) The method of claim 1 further comprising:

the pretreatment laser radiation exposure amounts to energy of at least the equivalent of 15-18 milliJoules per pulse of laser radiation delivered over about 700 million pulses to 1 billion pulses.

5. (Previously Presented) The method of claim 1 further comprising:

determining the amount of DUV laser radiation based upon a specified reduction in hygroscopicity of one or more layers of the multi-layered dielectric reflectivity coating, wherein a least one of the layers is hygroscopic.

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6. (Previously Presented) The method of claim 1 further comprising:
determining the amount of DUV laser radiation based upon a specified reduction in
compaction of one or more layers of the multi-layered dielectric reflectivity coating.

7. (Previously Presented) The method of claim 1 further comprising:
determining the amount of DUV laser radiation based upon a specified reduction in
hygroscopicity and compaction of one or more layers of the multi-layered dielectric reflectivity
coating, wherein a least one of the layers is hygroscopic.